

# POLICY OPEN HOUSE #3

*Reducing carbon emissions from existing large buildings*

*November 19, 2020*



# Reunión de puertas abiertas #3

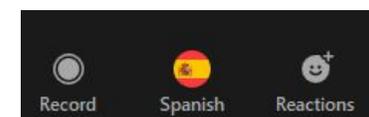
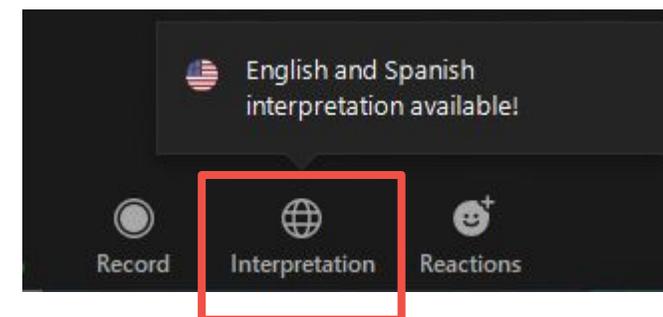
*Para desarrollar una nueva política para descarbonizar grandes edificios existentes*

*19 de noviembre de 2020*

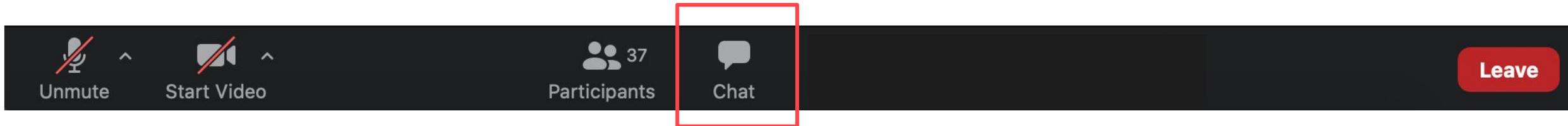
*Spanish interpretation is available for this meeting. Please select your preferred language option at the bottom of the screen by clicking on the globe symbol.*

**NOTE: EVERYONE MUST SELECT A LANGUAGE.**

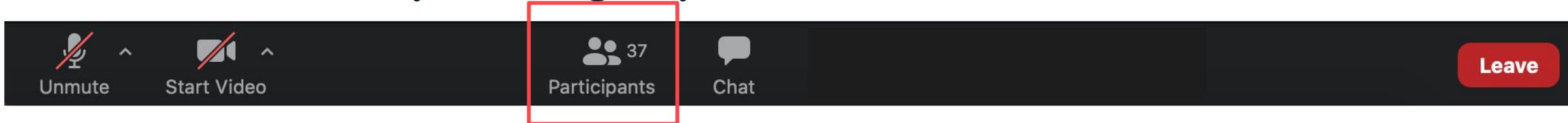
*Hay interpretación al español disponible para esta reunión. Seleccione la opción de idioma que prefiera en la parte inferior de la pantalla haciendo clic en el símbolo del globo.*



- Presentation followed by breakout discussions and comments.
- During the presentation, all microphones will be muted.
- If you are experiencing technical issues or have a clarifying question about something in the presentation, please let us know using the chat function.



- You can also let us know you're having an issue or ask a question by “raising your hand”. Click on “Participants” then “Raise Your Hand” in the pop-up window, either by hovering on your name or at the bottom of the window.



# MEETING RECORDING

*Grabación de la reunión*



We are going to be recording this meeting. The recording will include the presentation, any Q&A received during the meeting, and the report-outs from the breakouts at the end.

We are not recording the breakout sessions.

If you do not wish to be recorded during the meeting, please turn off your microphone and camera.

Vamos a grabar esta reunión. La grabación incluirá la presentación, las preguntas y respuestas recibidas durante la reunión y los informes de los discusiones en grupos pequeños al final.

No estamos grabando las sesiones de grupo.

Si no desea que lo graben durante la reunión, apague el micrófono y la cámara.

# MEETING AGENDA

*Agenda de la reunión*



## 6:00-6:10

- Welcome & introductions | Bienvenida y presentaciones

## 6:10-6:55

- Group presentation | Presentación de grupo
- Questions & answers | Preguntas y respuestas

## 6:55-7:20

- Breakout discussions | Discusiones en grupos

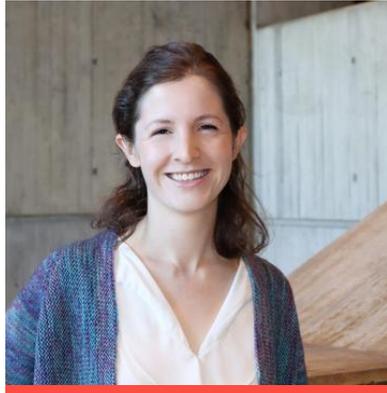
## 7:20-7:30

- Report-outs | Reportes de discusiones
- Next steps | Próximos pasos



# SPEAKERS AT TODAY'S OPEN HOUSE

*Ponentes en la reunión de hoy*



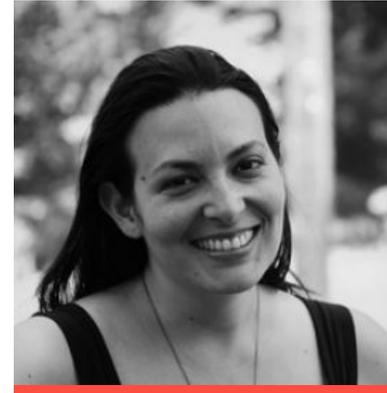
**KAT ESHEL**

*Carbon Neutrality  
Program Manager*



**ALISON BRIZIUS**

*Director of Climate  
and Environmental  
Planning*



**ANDREA ATKINSON**

*Executive Director,  
One Square World*



**PHILIP EASH GATES**

*Senior Associate, Synapse  
Energy Economics*

**Interpretation services provided by Gema Schaff.**  
**Servicios de interpretación proporcionados por Gema Schaff.**



**B**

# PRESENTATION

Presentación

# PRESENTATION OUTLINE

*Resumen de la presentación*



- **Recap of the policy concept and goals**
- **Update from the Technical Advisory Group**
- **Update from the Resident Advisory Group**
- **Policy design elements**

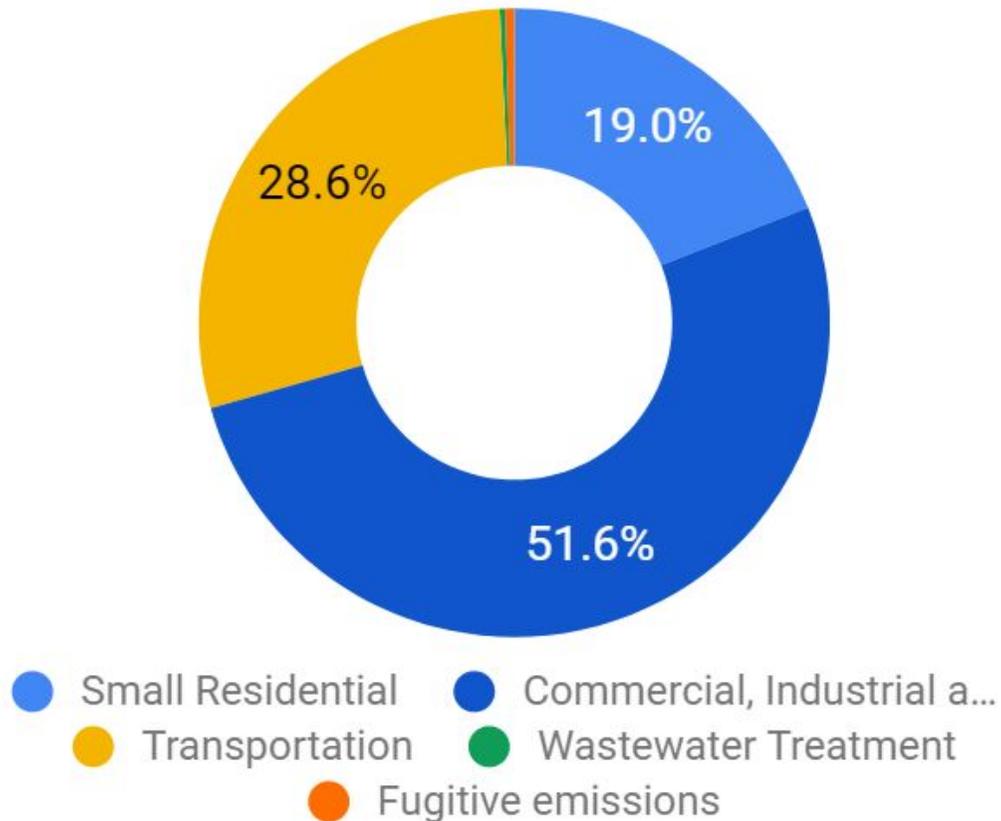


# POLICY GOALS

Objetivos de la política

*Mayor Martin J. Walsh*

## GHG Emissions by Source, 2017



Carbon emissions are changing our climate and causing sea level rise, extreme heat and stormwater flooding in Boston.

Buildings account for 70% of our emissions. Our emissions are not decreasing fast enough.

We need to accelerate carbon reductions:

1. Efficiency
2. Electrification
3. Clean energy

# KEY STRATEGIES TO CUT CARBON FROM BUILDINGS

*Estrategias clave para reducir el carbono de los edificios*



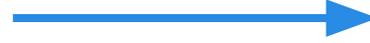
## NEW BUILDINGS

“Any new building that is not net-zero is a building we will have to retrofit”



- Zero net carbon municipal buildings and City-funded affordable housing
- Strengthen green zoning requirements to a net-zero standard

## EXISTING BUILDINGS



- Invest in energy efficiency and renewable energy in City buildings
- **Develop a carbon performance standard for existing large buildings**

## ENABLING ACTIONS



- State advocacy
- Workforce development strategy

## **Building Energy Reporting and Disclosure Ordinance (BERDO)**

1. Buildings over 35,000 square feet or 35 units are required to report their annual energy and water usage to the City each year. Carbon emissions are calculated by Energy Star Portfolio Manager. The City then discloses the energy, water and emissions data publicly.
2. After five years of being covered under BERDO, buildings must show that they have reduced their energy usage, are certified as a highly efficient building, or have performed an energy audit.

**There are also statewide programs to support energy efficiency, including Mass Save.**



## STRATEGY #5: Develop an emissions performance standard to decarbonize existing large buildings

### Why?

- Directly targets our largest emissions source
- Gives buildings flexibility in meeting short- to long-term targets and timing their investments

### Components:

- Carbon targets that decrease over time
- Explore 20,000 sqft threshold
- Multiple pathways: retrofits, renewable energy purchases, alternative compliance payment....



A)  
Maintain

## BERDO Annual Reporting Requirement

### Energy Action & Assessment Requirement

- Staggered timelines
- 2014 base year
- Many pathways: 15% reduction, energy audit, REC purchase, or high performance certification

B)  
Update

### Building Emissions Performance Standard

- Carbon targets by building type that decrease over time
- Equity focus
- Rules for off-site renewable purchases

# POLICY DEVELOPMENT PROCESS

Proceso de desarrollo de la política



## CITY of BOSTON

Project team



### Technical Advisory Group

Carbon targets  
Building pathways  
Cost analysis

### Resident Advisory Group

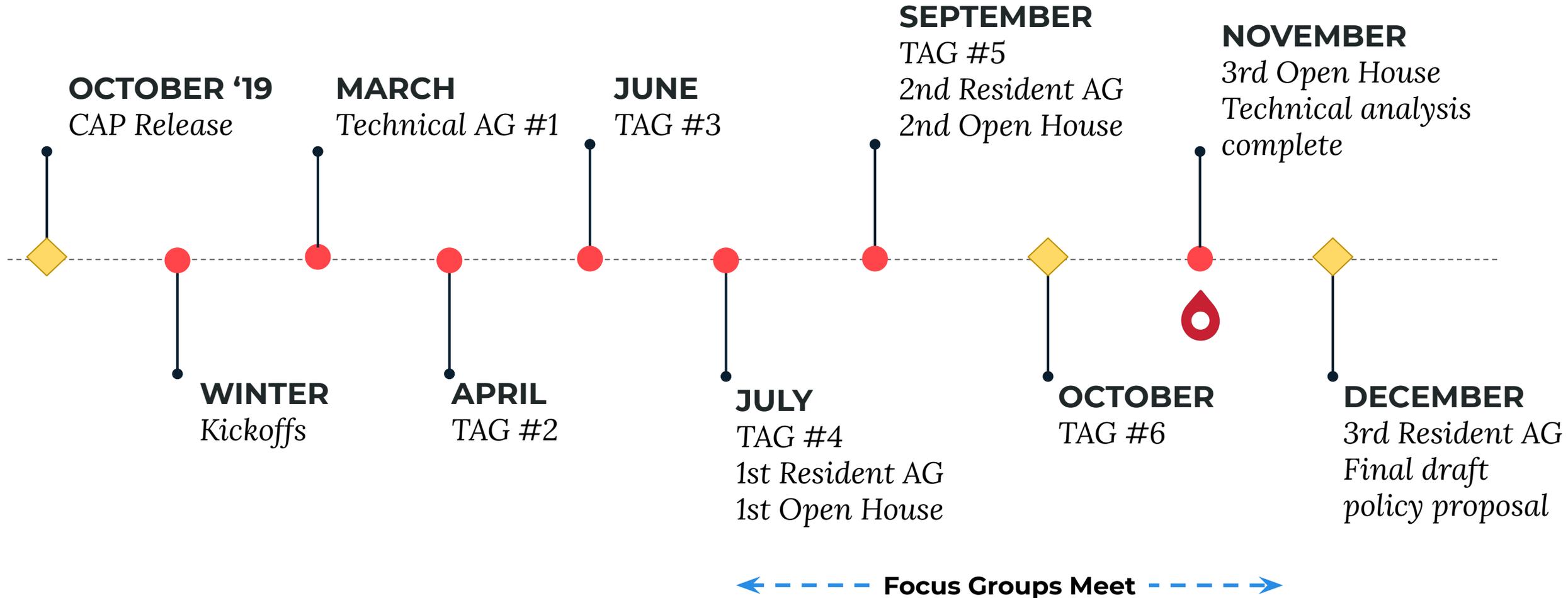
Policy principles  
Maximize opportunities  
Health outcomes

Advise  
&  
Inform



# PROJECT TIMELINE

Línea de tiempo del proyecto





**B**

# WHAT WE HEARD IN SEPTEMBER

Lo que hemos escuchado en setiembre

*Mayor Martin J. Walsh*

## What we heard:

- Support for workforce development, training for green retrofit work and engaging with local institutions like Roxbury Community College
- Interest in supporting weatherization for small buildings that don't meet the threshold, creating a comprehensive weatherization program that also addresses health and safety repairs
- Interest in supporting solar on residential buildings, including low-income homeowners
- Mass Save does not address energy storage and resilience during power outages, incentives could be improved (not always affordable even with subsidies)
- Concern for pathway and financing for Boston Housing Authority and Community Development Corporations

## What we heard:

- Importance of financing and technical assistance to do this necessary work
- Ongoing challenge of the split incentive - tenants and landlords need to talk to each other. Importance of net zero tenants and green engagement for renters, on both the commercial and multifamily side
- Passive House can be a good way to start, in combination with solar and other carbon-neutral fuels
- Inspired by examples seen in Europe
  - *Pilot using panelization like Circle Square in the South End, where the tenants were only displaced for 3 days for each apartment*
- Difficulty in forecasting the cost of off-site renewable energy underlies the importance on onsite improvements first like efficiency and electrification

## What we heard:

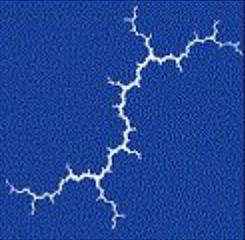
- We have the technological know-how but still need a way to pay for upgrades. We know that existing resources are not meeting all the need, especially for under-resourced buildings.
- Noted Mass Save sometimes cannot support project due to the cost-effectiveness test and the low price of natural gas
- Gas is projected to be more expensive than electricity in 5 years, providing an incentive to transition now, especially in low-income buildings
- Nonprofits and building managers will need a lot of support and guidance on how to take advantage of opportunities within a building, who to work with, etc.



# TECHNICAL ADVISORY GROUP UPDATE

Actualización del Grupo Consultivo Técnico

*Mayor Martin J. Walsh*

- **The City has convened a Technical Advisory Group (TAG)** of Boston area experts. The TAG includes experts in building science, architecture, engineering, construction, operations, energy policy, renewable energy, and sustainability.
- 
- Synapse**  
Energy Economics, Inc.
- **The TAG is tasked with providing expertise on:**
    - *Appropriate carbon performance metrics and targets*
    - *Retrofit strategies and costs, appropriate use of off-site renewable energy and offsets*
    - *Data, case studies and expertise (e.g., technical potential for energy conservation measures, cost data, financing approaches)*
  - **The TAG met 12 times (6 times as a full group plus 6 focus group meetings) and concluded in October.**

1. Analyze BERDO data
  - a. *Descriptive statistics and data visualization*
  - b. *Development of Boston-specific building use typologies*
2. Propose zero net carbon performance policy elements
  - a. *Develop building emissions performance targets, forecast resulting emissions reductions*
  - b. *Evaluate building size thresholds*
3. Identify decarbonization pathways
  - a. *Develop end-use energy/emission and equipment profiles by building type*
  - b. *Identify emissions reduction strategies and assess the technical potential*
  - c. *Assess impact of alternative energy & offset procurement*
4. Estimate cost impact of performance standard
  - a. *Estimate the marginal abatement cost per strategy*
  - b. *Identify cost of pathways to zero net carbon across strategies*



# RESIDENT ADVISORY GROUP UPDATE

Actualización del Grupo Consultivo Residente

*Mayor Martin J. Walsh*



**Goal: Develop a building emissions standard that minimizes harm and maximizes benefits and opportunities for Boston's frontline populations most affected by the proposed policy**

**Approach:**

- *Receive community expertise and feedback*
- *Raise awareness of potential impacts and opportunities*
- *Collaborate with and center communities that will be impacted by the policy*

**The resident advisory group has met twice; its third meeting takes place on December 3rd.**

# Design Process: RESIDENTS ARE CO-DESIGNERS

## Resident Advisory Meeting 1:

Understanding community priorities

**“Here are the facts, what would be best for you?”**

- Understand the reality.
- Imagine the future.
- Clarify what you definitely want and what you do not.

## Policy Development

City & Consultant teams build policy principles based on Resident priorities

## Resident Advisory Meeting 2:

Check-in with community on direction of ordinance development

**“Is this what you wanted?”**

## Policy Refinement

based on community feedback

## Resident Advisory Meeting 3:

Final review from community

**“Here is the final draft! Let’s make it a reality together.”**

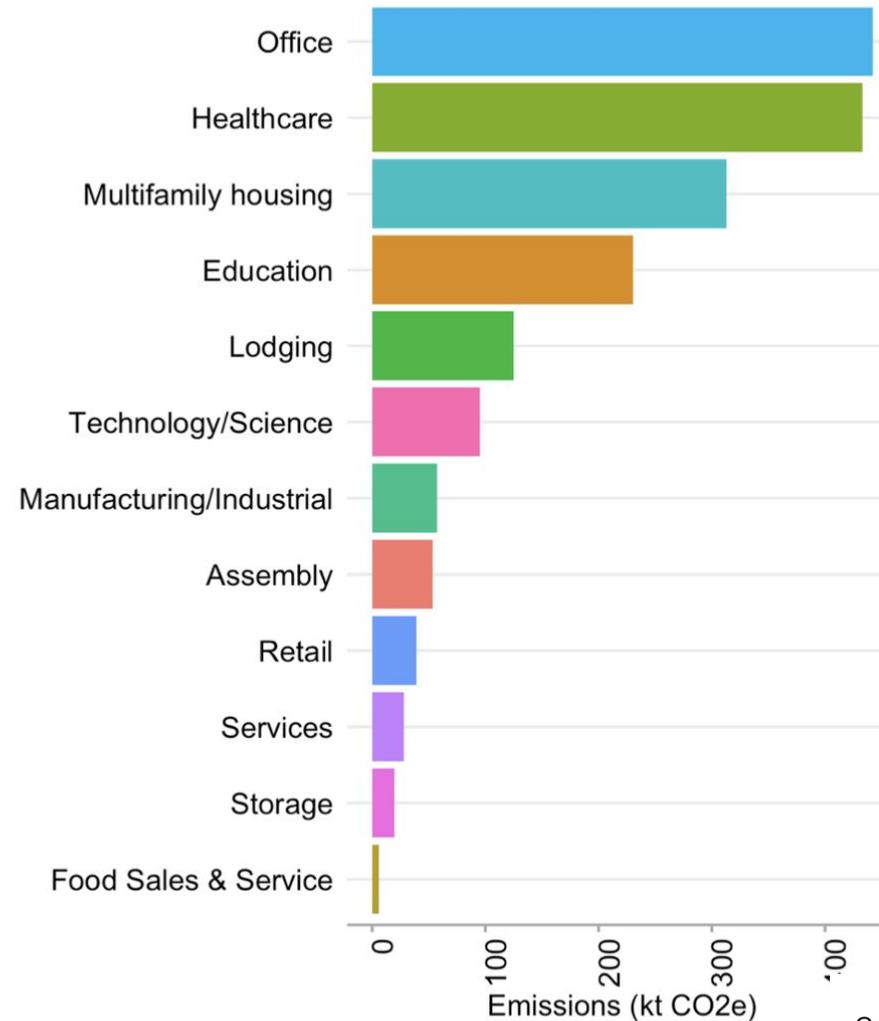
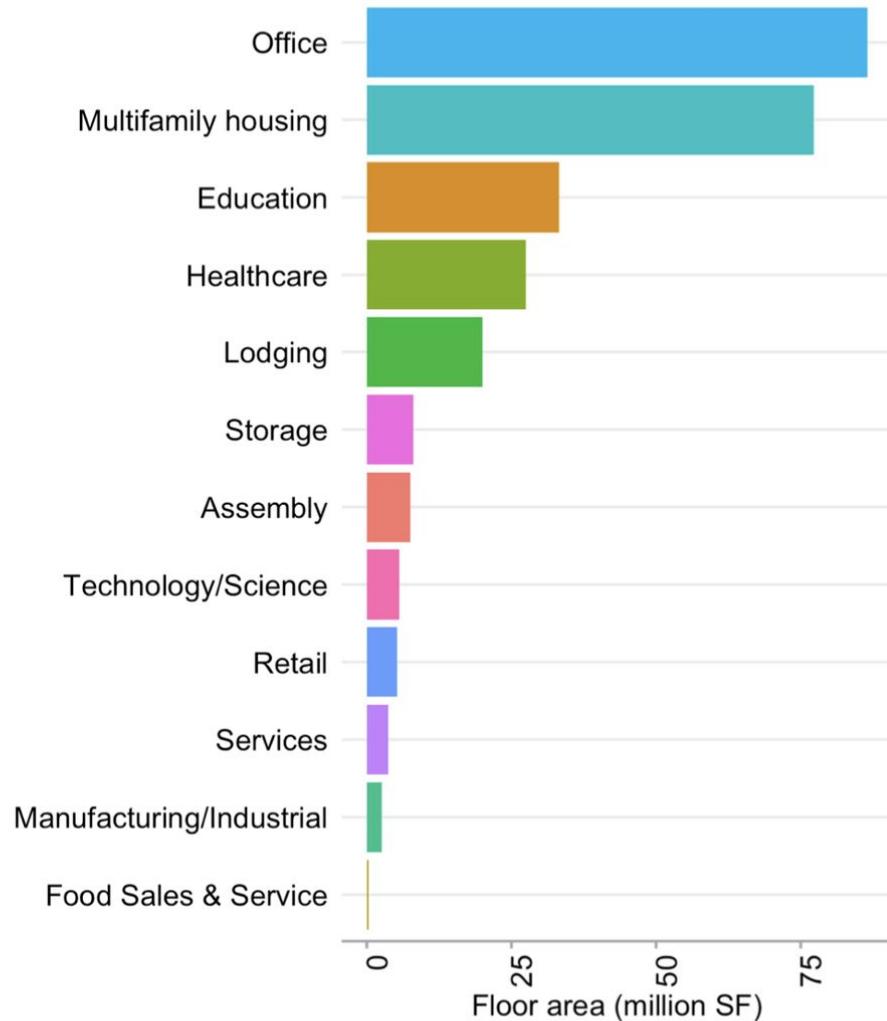


# BUILDING AREA AND EMISSIONS (35k+)

Área de edificio y emisiones (35 000+ pies cuadrados)



## Floor area and total emissions of BERDO buildings by type, 2018



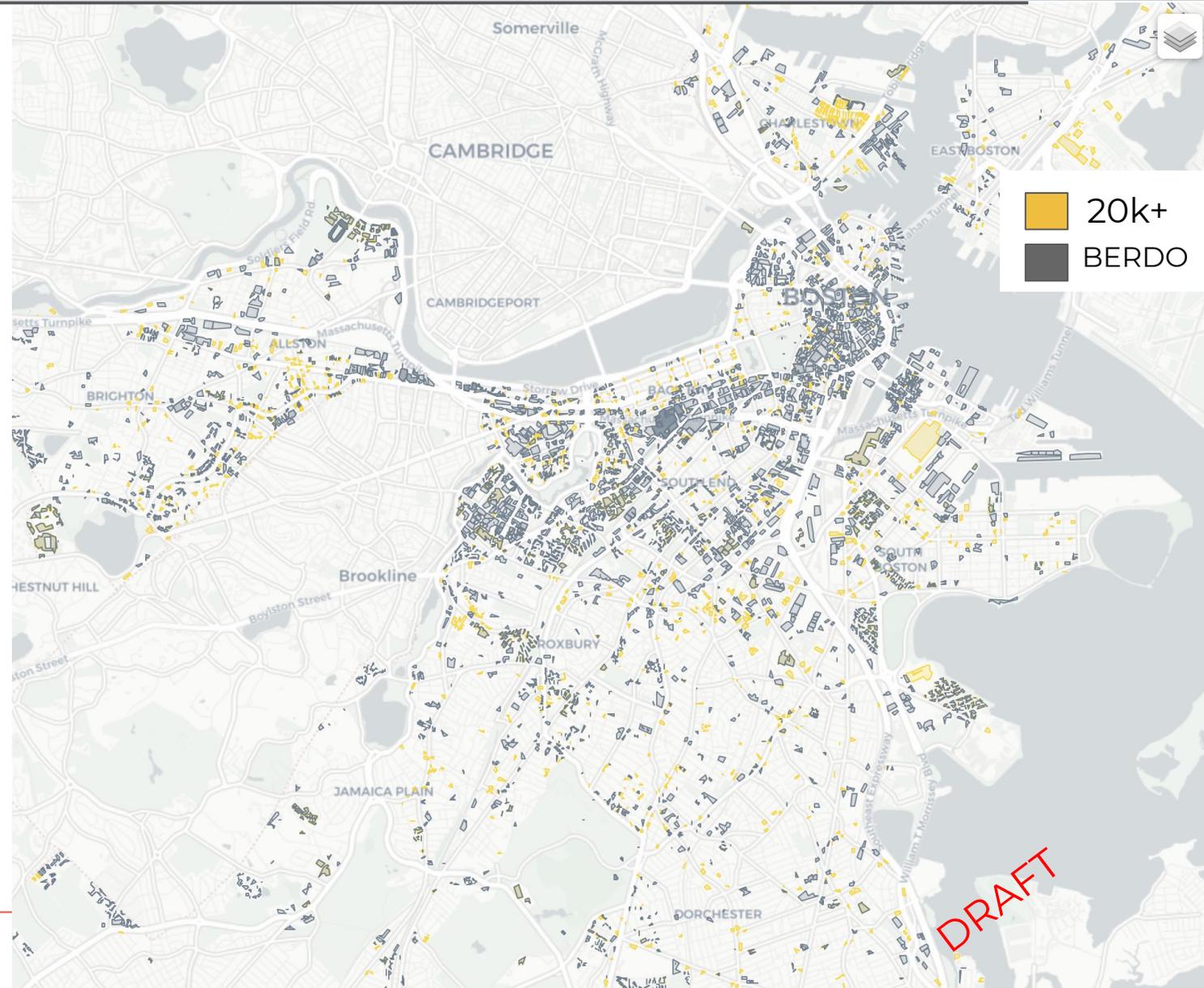
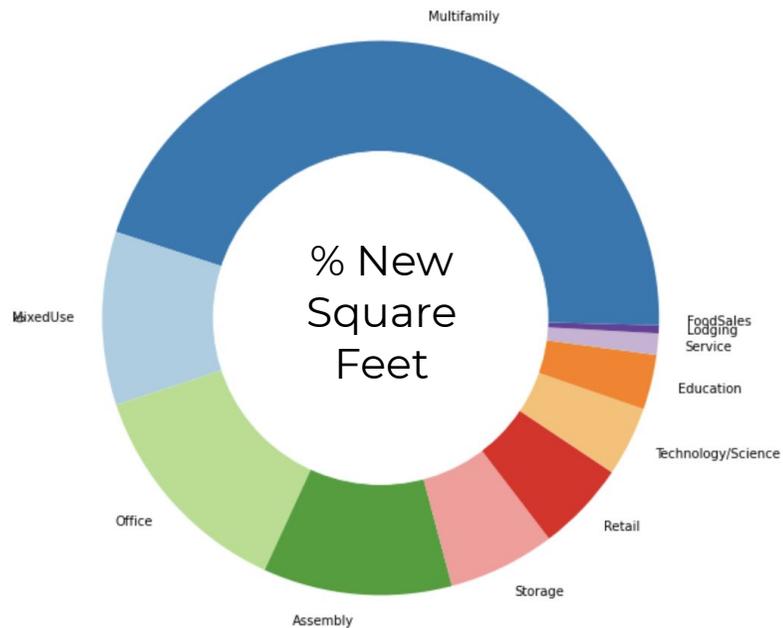
DRAFT

# SIZE THRESHOLD

Umbral de tamaño



- **Current policy:** 35,000+ square feet or 35+ units
- **Under Consideration:** Lower the threshold to 20,000 square feet



## Existing data points:

- Energy use (required)
- Water use (required)
- Waste
- Occupancy
- Building uses by square feet



The most-used energy measurement and tracking tool for commercial buildings.

## Additional data points under consideration:

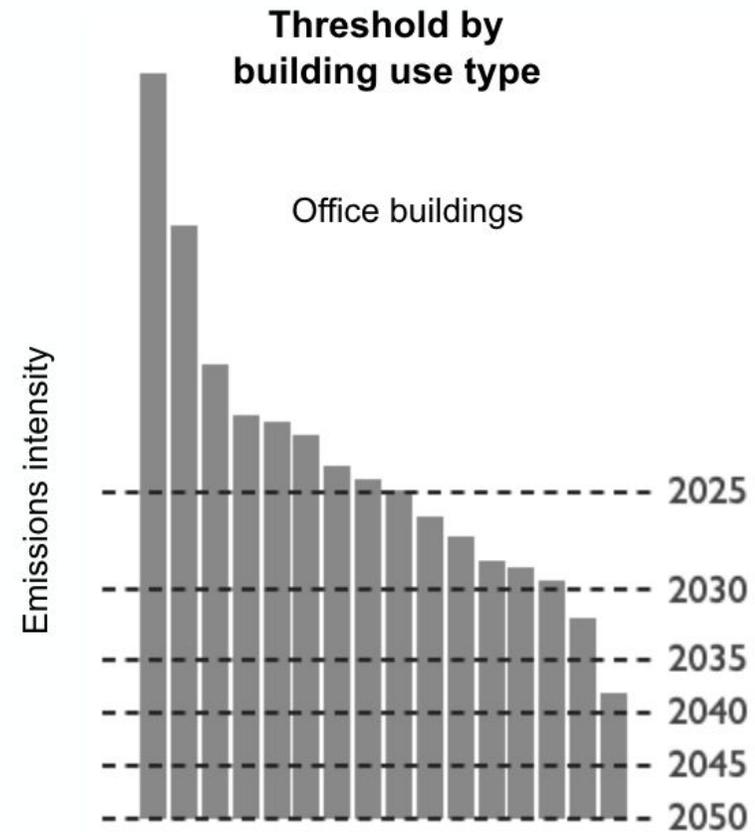
- Clean energy purchases
- Custom emissions factors (e.g., district heating systems)
- EV charging
- Emergency backup generators
- Voluntary renter reports (energy costs, air quality...)

# SETTING EMISSIONS TARGETS

Establecer objetivos de emisiones de carbono



- Developed through the technical analysis process, using Boston and regional data, including BERDO and data from TAG members
- Emissions targets are aligned with citywide goals:
  - -50% by 2030
  - *Carbon neutrality by 2050*
- Carbon targets are set by building type with 5-year increments
- Additional considerations for special or unique circumstances (mixed use buildings, portfolios and campuses, historic buildings...)



NOTE: If you are a building owner or manager and wish to see how the standards might apply to your building(s), please reach out!

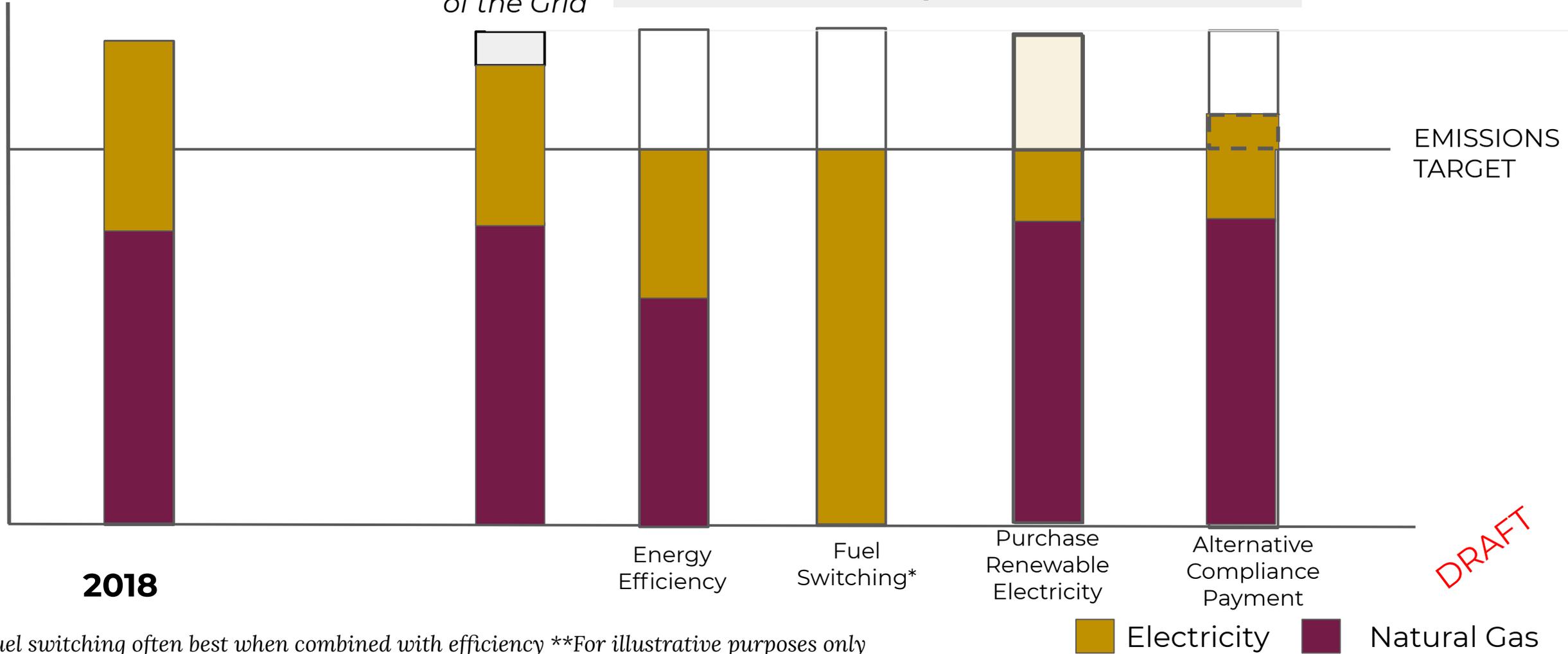
# OPTIONS TO ACHIEVE TARGETS

Opciones para alcanzar los objetivos



*"Greening of the Grid"*

## Options



EMISSIONS TARGET

DRAFT

2018

Energy Efficiency

Fuel Switching\*

Purchase Renewable Electricity

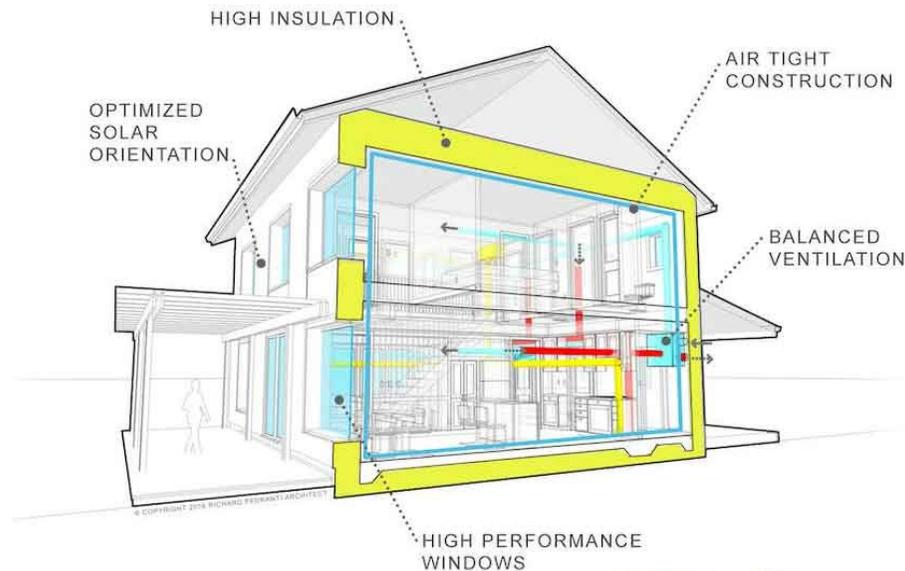
Alternative Compliance Payment

Electricity Natural Gas

\* Fuel switching often best when combined with efficiency \*\*For illustrative purposes only

# OPTIONS TO RETROFIT AND FUEL SWITCH

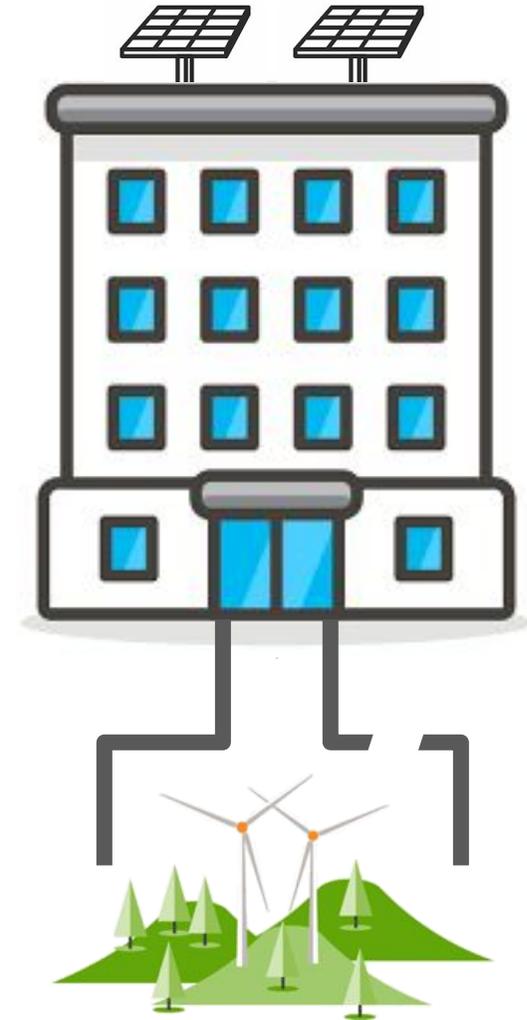
Opciones para modernizar y cambiar combustibles



- Building owners may undertake measures to improve energy performance and reduce fossil fuel consumption within the building
  - *Envelope improvements*
  - *Appliance upgrades and switches (heat pumps, solar, geothermal)*
  - *Building operations and controls*
- The City is developing a resource hub to connect building owners with appropriate technical assistance and financial resources.

## To abate carbon from electricity, building owners can:

1. Deploy renewable energy onsite;
2. Purchase renewable electricity that is generated offsite.
  - Community choice electricity: provide safe access to affordable and clean energy for residents → spring 2021 launch
  - Renewable Energy Certificates
  - Power purchase agreements



# ALTERNATIVE COMPLIANCE PAYMENT

*Pago de cumplimiento alternativo*



- Additional option to meet carbon targets
- Tied to average retrofit cost per metric ton of CO<sub>2</sub>e
  - *Draft results from technical analysis indicate \$214-\$234/mtCO<sub>2</sub>e*
- Potential uses for revenue include supporting emissions reductions combined with
  - *affordable housing retrofits*
  - *anti-displacement efforts*
  - *equitable workforce development*



Jeffrey Blackwell

## Data quality:

- *Self-certification with annual data submission*
- *Periodic third-party verification*
- *Spot audits with penalty for false reports*

## Non-compliance with standards

- *Penalty for failing to report or to comply with standards*
- *Note: Compliance can be achieved through multiple pathways detailed above. The City is also developing additional support to assist building owners and residents.*

## Resource hub:

The City is developing a one-stop support program for building owners and for residents:

- Connect building owners with appropriate incentives and financing mechanisms (MassSave, LIHEAP, WAP, tax credits, PACE, etc.) and provide one-on-one support
- Educate and support residents seeking to improve building health
- Integration with other City support programs (e.g., Boston Home Center, Breathe Easy at Home from BPHC)
- Guidance and case studies (historic, resilience)

## State advocacy:

- Just cause eviction and right to counsel
- Improving energy efficiency incentives

## Anti-displacement strategies:

- Right of first refusal, right to stay for condo conversions, **\*NEW\*** notice of rights
- Historic housing investment (\$500M announced at 2020 State of the City) and commitment to a zero emission standard for City-funded affordable housing



# SMALL GROUP DISCUSSIONS

Discusiones de grupo

# WHAT TO EXPECT IN YOUR SMALL GROUP DISCUSSION

*Qué esperar en su discusión de grupo*



- Small group discussions using the “Zoom Room” function.
- During the breakout, you can turn on your microphone and share your video.
- Please click on the three dots at the top right of your video/name screen to include your full name, pronouns and organization if applicable.
- If you have a question or comment but don't feel comfortable jumping in, you can “raise your hand” or press \*9 if you're calling in.
- Discusiones en grupos pequeños utilizando la función "Zoom Room".
- Puede encender su micrófono y compartir su video.
- Haga clic en los tres puntos en la parte superior derecha de la pantalla de su video / nombre para incluir su nombre completo, pronombres y organización, si corresponde.
- Si tiene una pregunta o comentario, pero no se siente cómodo interviniendo, puede "levantar la mano" o presionar \* 9 si está llamando.

# WHAT TO EXPECT IN YOUR SMALL GROUP DISCUSSION

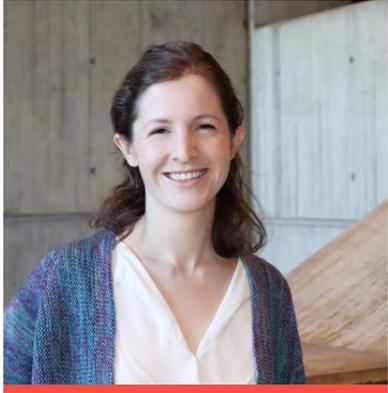
*Qué esperar en su discusión de grupo*



- We have prepared a list of questions to get the conversation started.
- A staff member will take notes to record your questions and comments and help facilitate the conversation.
- Ways of being:
  - *Speak from the "I"*
  - *Take space, make space*
  - *Actively listen*
  - *Own your intentions and impacts*
- Hemos preparado una lista de preguntas para iniciar la conversación.
- Un miembro del personal tomará notas para registrar sus preguntas y comentarios y ayudar a facilitar la conversación.
- Normas comunitarias:
  - *Habla desde el "yo"*
  - *Toma espacio, haz espacio*
  - *Escuchar activamente*
  - *Sea dueño de sus intenciones e impactos*

# BREAKOUT DISCUSSION FACILITATORS

*Facilitadores de discusión*



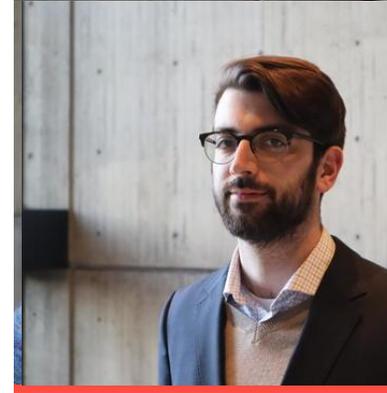
**KAT ESHEL**

*Carbon Neutrality  
Program Manager*



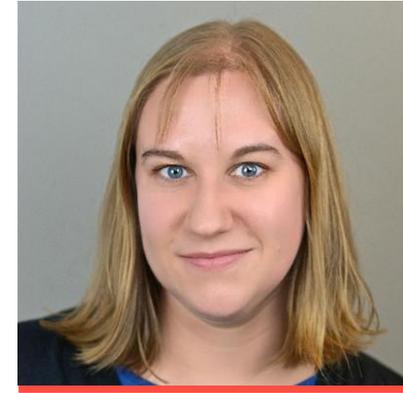
**ALISON BRIZIUS**

*Director of Climate  
and Environmental  
Planning*



**BEN SILVERMAN**

*Climate & Buildings  
Program Manager*



**BRENDA PIKE**

*Climate Advisor*

# QUESTIONS FOR DISCUSSION

*Preguntas para la discusión*



- What were you glad to hear about?
  - What do you want to learn more about?
  - How should we treat buildings with unique circumstances? What kinds of situations do you think might merit a waiver?
  - How should any revenue from the standard be used? How would it be governed?
  - What other policies can help strengthen the benefits and limit the impacts of the standard?
  - How do we measure success? What are some indicators you know of that could be used?
- ¿De qué te alegró escuchar?
  - ¿Sobre qué quieres aprender más?
  - ¿Cómo debemos tratar los edificios con circunstancias únicas? ¿Qué tipo de situaciones cree que podrían merecer una dispensa?
  - ¿Cómo se deben utilizar los ingresos de la norma? ¿Cómo se gobernaría?
  - ¿Qué otras políticas pueden ayudar a fortalecer los beneficios y limitar los impactos del estándar?
  - ¿Cómo medimos el éxito? ¿Cuáles son algunos de los indicadores que conoce que podrían utilizarse?

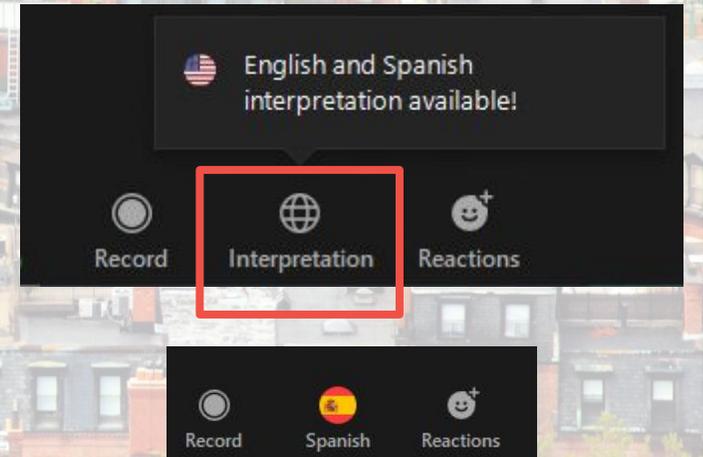
# REPORT OUT

*Compartir los resultados de la discusión*



**Please remember to select your language.**

**Por favor, recuerda seleccionar su idioma.**





# NEXT STEPS

Próximos pasos

*Mayor Martin J. Walsh*

# NEXT STEPS

*Próximos pasos*



- The next and final Open House will take place in January (date to be confirmed).
- To share additional feedback, please respond to our survey (link shared in the chat and to be emailed after the end of the meeting).
- We will continue to update our website with up-to-date information.
- La próxima y última jornada de puertas abiertas tendrá lugar en enero (fecha por confirmar).
- Para compartir comentarios adicionales, responda a nuestra encuesta (enlace compartido en el chat y que se enviará por correo electrónico después del final de la reunión).
- Continuaremos actualizando nuestro sitio web con información actualizada.

# UPCOMING OPPORTUNITIES

*Próximas oportunidades*



**Tuesday, Nov 24  
6:00pm-7:00pm**

**'MOAKLEY TALKS' Planning  
Discussion: Public Health  
and Environment**

***Parks Event***

**Online registration at  
[boston.gov/events](https://boston.gov/events)**

**Calling all East Boston and  
Charlestown residents!**

**Join a Climate Ready  
Advisory Board for your  
neighborhood.**

**Reach out to us if you're  
interested at  
[environment@boston.gov](mailto:environment@boston.gov).**

For up-to-date information and resources related to  
COVID-19, visit  
[boston.gov/coronavirus](https://boston.gov/coronavirus)

Para obtener información y recursos actualizados relacionados con  
COVID-19, visite  
[boston.gov/coronavirus](https://boston.gov/coronavirus)



**Thank you!**  
¡Gracias por participar!



**B**

# POLICY DESIGN ELEMENTS

Elementos de diseño de la política

*Mayor Martin J. Walsh*